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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •

JUNE 13, 1936

Ready For Eclipse

See Page 381

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SCIENCE NEWS LETTER

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The Weekly Summary of

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Edited by WATSON DAVIS

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DO YOU KNOW?

The average path of a tornado is about 30 miles long and 1,000 feet wide.

Experimental proof that pollens cause hay fever was obtained in England in 1873.

A new kind of combustion engine invented in Germany can be operated as either a gas or a Diesel engine.

Trees that are only scorched by fire are usually doomed because they are weakened and made more susceptible to disease.

To bring back the tang to canned orange or grapefruit juice, pour the juice from one container to another six or eight times to aerate it.

Mathematicians consider it impossible to trisect an angle with ruler and compass; but it took a Columbia University professor several weeks to disprove a "solution" to this imposssible problem sent by an 11-year-old Greek boy in Boston.

Spinach was eaten by monks in the Middle Ages as food suitable for fast days.

The backs of rugs and carpets are being treated with latex to rubber-set the pile.

War maps made of pure vegetable parchment are said to be stronger when wet than when dry.

For ten years, the New York Public Library has been keeping track of the way bindings on encyclopedia volumes wear, and best methods of care and upkeep.

One of the inner shells of the earth is called the sial, from the first syllables of silica and alumina; and another inner shell is called the sima, from silica and magnesia.

To meet the unemployment problem from May to October, the mayor of a small city in the Rhon Mountains, Germany, organized the unemployed to collect and work medicinal herbs and leaves.

WITH THE SCIENCES THIS WEEK

Most articles are based on communications to Science Service or papers before meetings, but where published sources are used they are referred to in the article.

ANTHROPOLOGY

Is there a superior race? p. 378.

ARCHAEOLOGY

How old is the political cartoon? p. 382.

ASTRONOMY

What exceptional instrument is to be taken to the scene of the eclipse by the Harvard-M. I. T. expedition? p. 381.

BOTANY

What is good for ivy poisoning? p. 386.

ENGINEERING-SPORT

How can electricity aid in judging a fencing match? p. 381.

EUGENICS

What is the basis for blood grouping? p. 377.

MEDICINE

Can diet aid in the treatment of Addison's disease? p. 384.

PALEONTOLOGY

What kind of animal has had its bones preserved through sixty million years? p. 386.

PHYSICS

Are neutrons more numerous in the stratosphere than on the earth? p. 380.

Who received the Chandler Medal this year? p. 380.

PHYSIOLOGY

Will too little drink cause a headache? p. 375.

PHYSIOLOGY-PSYCHOLOGY

Has your hearing apparatus a wide margin of safety? p. 385.

PLANT PHYSIOLOGY

Does the odor of peppermint affect the health of plants? p. 385.

PSYCHIATRY

Can the psychiatrist aid the sufferer from "sleeping sickness"? p. 379.

PSYCHOLOGY

Is memory a distinct mental ability? p. 376.

PUBLIC HEALTH

Do married people live longer? p. 385.

What cities have wiped out typhoid fever deaths? p. 376.

What danger is increased by economic recovery? p. 375.

SURGERY

How can the air of the operating room be sterilized? p. 380.

PHYSIOLOGY

Headaches Caused by Stretch Of Brain's Blood Vessels

Either High or Low "Tide" of Brain Fluid May Cause Pain; Regulation of Fluid Intake Is Advised

"TIDES" in the brain make a headache—the "morning after" kind or otherwise, Dr. Temple Fay, professor of neurology at Temple University Medical School, Philadelphia, told members of the American Neurological Association meeting in Atlantic City.

Headaches, it appears, may be classed relatively as wet ones (high tide) and dry ones (low tide). The headache of the "morning after" is a wet one, though not all wet ones are due to alcoholic indulgence. General over-indulgence in food and fluids brings on this kind.

What makes a headache, reduced to simplest terms, is the amount of fluid in and around the brain. Too much or too little of this fluid results in stretching the large blood vessels that supply the brain. The stretching is what hurts. Dr. Fay determined this by stretching the nerves of these blood vessels in the brains of patients undergoing brain operations.

The wet headache—too much fluid in the brain—is most common in the overweight, hydrated person who consumes large quantities of food and fluid and does not eliminate enough fluid. This person should, in general, reduce the amount of liquid consumed to not more than one quart a day.

Some Should Drink More

The headache noted in the common type of underweight, overactive, nervous individual arises when fluid from the body is too rapidly lost from the skin or kidneys and cannot be properly retained in the brain cavity. This type of person, with the advice of his physician, should increase his fluid consumption to three or more quarts per day along with extra feedings.

These directions, Dr. Fay pointed out, apply to the true variety of headache, and should not be followed until medical examination has ruled out other conditions which may refer pain to the head.

The beneficial use of certain drugs for headaches was ascribed to their effect in regulating the fluid and blood volume relationship within the brain itself.

The large blood vessels which give a headache when stretched are the only structures in the brain that carry pain fibers. Besides stretching because of too much or too little fluid, irritation of these vessels at other places on their path to and from the brain gives rise to pain felt in the head as a headache. Such irritation may arise in the neck, chest or abdomen, and this explains the headaches that may accompany infections in nose, throat or in diseases of the chest and abdomen.

The discovery of the mechanism of headache reported is based on many years of research by himself and other scientists, Dr. Fay pointed out. He also reported a test, called a cephalalgiagram, for determining whether a headache is of the wet or dry variety.

Science News Letter, June 13, 1936

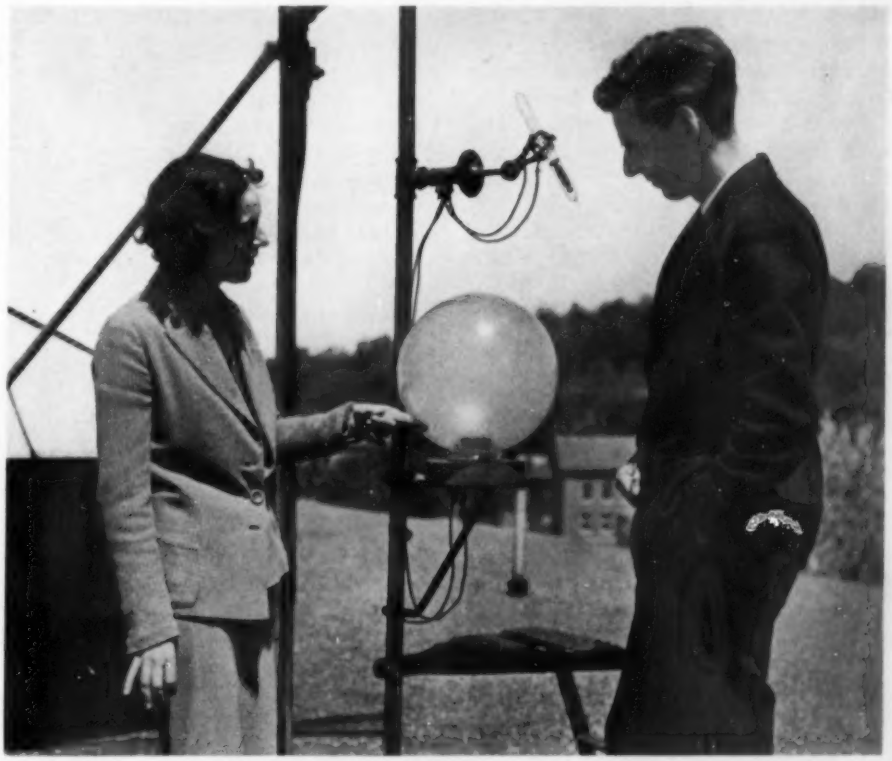
PUBLIC HEALTH

Water Pollution Problem Made Acute By Recovery

RIVERS and streams of America are being polluted by a third of the nation's population and by reviving industries, despite a quarter century of struggle by health and conservation experts to keep water supplies clean and safe.

This warning was carried to President Roosevelt from a conference of governors, senators and technical authorities held in Washington, D. C. Abel Wolman, Maryland Health Department chief engineer and water resources specialist, revealed the present extent of the threat to clean, drinkable water.

Dr. Thomas Parran, U. S. Public Health Service Surgeon General, listed as regions of acute pollution: Ohio River, the Niagara frontier, the Hudson



MEASURING SUNLIGHT'S INTENSITY

One of four devices of its kind is the new sunlight intensity photoelectric recorder now in use at Massachusetts State College. It is being used in experiments on plant physiology where not only the hours of sunlight but their relative intensity must be known. Miss Della Brownell, assistant to the head of the College weather station, is demonstrating the apparatus to a student.

and Connecticut rivers and the upper reaches of the Potomac.

Water poisoned by sewage and wastes from factories can be made drinkable by purification treatment, but there is a limit to the pollution that can be counteracted by engineering methods. The limit is now being exceeded at several points along the Ohio.

The conference went on record as urging President Roosevelt to sponsor the passage of a Congressional bill, allowing the U. S. Public Health Service to tackle the problem of stream pollution.

Science News Letter, June 13, 1936

PUBLIC HEALTH

No Typhoid Fever Deaths In 24 Large Cities

TWENTY-FOUR large cities have a place on the honor roll of the American Medical Association, having had no deaths from typhoid fever during the year 1935. (*Journal, American Medical Association,* June 6.)

These cities are: Bridgeport, Conn.; Cambridge, Mass.; Elizabeth, N. J.; Erie, Pa.; Fort Wayne, Ind.; Grand Rapids, Mich.; Jacksonville, Fla.; Jersey City, N. J.; Long Beach, Calif.; Milwaukee, Wis.; Newark, N. J.; New Bedford, Mass.; New Haven, Conn.; Omaha, Neb.; Paterson, N. J.; Peoria, Ill.; San Diego, Calif.; Scranton, Pa.; Somerville, Mass.; Springfield, Mass.; Tacoma, Wash.; Trenton, N. J.; Wichita, Kans., and Youngstown, Ohio.

Eight of these cities—five of them in New England—had no deaths either from typhoid or diphtheria in 1935. They are: Bridgeport, Cambridge, Erie, New Bedford, New Haven, Scranton, Springfield and Tacoma.

The total of typhoid deaths for the ninety-three large cities annually surveyed by the American Medical Association was notably less in 1935 than in 1934, 385 as against 470.

At the other end of the scale are seven cities with high death rates from typhoid. In the order of high mortality from the disease, they are: El Paso, Tex.; New Orleans, La.; Nashville, Tenn.; Tampa, Fla.; Norfolk, Va.; Knoxville and Memphis, Tenn. In some of these cities, one-third or more of the reported deaths from typhoid fever were stated to be among non-residents.

Science News Letter, June 13, 1936

Termites attacking woodwork in buildings are able to dissolve lime mortar by means of an acid secretion.

BLINDING GLARE

Scientists have found a cure for this hazard. See illustration on opposite page.

PSYCHOLOGY

"Dimensions of Intellect" Found by Psychologist

SEVEN primary elements that go to make up human intelligence just as the primary colors of the rainbow may be mixed to produce the thousands of beautiful hues with which we are familiar, have just been announced to the scientific world by Dr. Louis L. Thurstone, authority on mental testing at the University of Chicago.

They may eventually outmode present measures of I.Q. and mental age.

Four long years of research with complicated statistical and mathematical techniques enabled Dr. Thurstone to identify and name these seven "primary colors of personality."

They are:

Seven Dimensions

1. Number facility. This is an ability necessary to the accountant and mathematician. As Dr. Thurstone put it, "its appearance as a primary factor is not surprising in view of the common observation that many otherwise intelligent individuals seem to have a mental blind spot in dealing with numbers."

2. Word fluency. Here is a talent necessary for the political speaker, the salesman, the teacher.

3. Visualizing ability. Some persons are visually minded and learn best through seeing things or pictures of them.

4. Memory. Scientific justification does exist for the disputed popular idea that memory is distinct from other mental abilities, and that a person can be described as having a good memory in general without specification as to what he can remember well. Dr. Thurstone's experimental findings agree with the common observation that people of superior intellect sometimes reveal surprisingly poor memory.

5. Perceptual speed. This is the ability that enables some people to scan a page of names or numbers to find a particular item quickly, while others must examine each item.

6. Induction. Dr. Thurstone explains induction as "involved in several tasks in which the subject must discover some principle or rule that governs the material." More experiments should reveal whether originality and inventiveness are involved.

7. Verbal reasoning. This might also be called deduction or the ability to see relations between words. The experiments showed that this is something different from mere fluency with words.

These "dimensions of intellect" which may revolutionize mental testing and vocational guidance, were discovered after examination of 240 university students who volunteered to take a total of 56 psychological tests. Dr. Thurstone's conclusions were embodied in a report to the American Council on Education.

Science News Letter, June 13, 1936

The seeds and skins of grapes yield an oil that is finding a number of uses in German industry.

EUGENICS

Sterilization Process Reversed In Operation on Girl

Scale for Measuring Social Maturity Tests Competence; Home Conditions Should Govern Size of the Family

A CASE in which a sterilization operation on a young girl was reversed four years later so that she was able to give birth to a healthy baby was made public in a report by E. S. Gosney, of the Human Betterment Foundation, Pasadena, Calif., to the Eugenics Research Association meeting in New York City.

This girl at the age of 14 was committed to a California institution for the feeble-minded and the sterilization operation was performed. Later she was paroled, "made good," was discharged from the institution and married successfully.

Then she asked for an operation which would reverse the sterilization. This was done and six years after her sterilization she gave birth to her baby.

How Old Are You Socially?

Are you grown up socially? A scale for measuring your ability to get along in the world was described to the same meeting by Dr. Edgar A. Doll, director of research at the Training School, Vineland, New Jersey.

Originally designed to test an individual's social competence or ability to care for himself when suspected of mental deficiency, the scale is also well adapted for the study of the family history of persons of extraordinary ability and worth to society, Dr. Doll explained.

It can measure the whole gamut of human ability from feeble-mindedness to genius, and does not depend upon a test given the individual himself but upon reports on the things he is able to accomplish. The socially mature person is able to systematize his own work, for example, to make purchases for others, and to promote civic progress. The person with a social age of 18 should be able to make long trips alone and control his own expenditures.

Blood Paternity Tests

With the use of blood tests, the chances of exonerating a man falsely accused of paternity average about one in three, Dr. Laurence H. Snyder, chairman of the National Research Council's Committee on Human Inheritance, and Ohio State University zoologist, told the meeting. Such tests never indicate positively who is the father of a child but eliminate those who could not be.

TAKING THE GLARE FROM NIGHT DRIVING

By using the new Polaroid material on headlights and on windshields it is possible to obtain the widely contrasting effects shown above and on the facing page. On the facing page is the ordinary appearance on looking at automobile headlights at night. Here is how the same scene looks when the glare is taken from the rays. Actually the oncoming headlights have a very faint purplish hue while all details are illuminated by one's own headlights.

These tests have been used for years in Europe, Dr. Snyder said, and thousands of cases of disputed paternity have been examined by this method. The United States is considerably behind in this respect; only the states of New York and Wisconsin having laws providing for the blood tests in such cases. Elsewhere in this country they are used, but only sporadically.

Blood Groups Inherited

Blood tests are effective in some cases of disputed paternity because of the fact that if a baby's blood contains certain elements lacking in the mother's blood, the father must be a person whose blood contains that element. Scientists are also able, given a knowledge of the blood groups of father and mother, to determine just what the blood groups of the child must be. This enables them to straighten out puzzling cases of "mixed babies" occurring in maternity hospitals.

The elements in the blood cells which are the basis for this grouping are known scientifically as "antigens." When antigen A is present in a person's blood, that person's blood cells will "agglutinate" or clump when mixed with serum from a person not containing the A antigen. For this reason, the blood group tests are essential for selecting donors for blood transfusions.

Three groups of this type are known: A which has antigen A, B with antigen B, and O which has neither. Two other antigens, M and N, can also be demonstrated in a little different way by mixing the blood cells with serum from an animal previously injected with an antigen.

Other antigens are known to scientists, but so far their presence in the blood cannot be demonstrated easily enough to make them much help in legal cases. Future research along this line, however, will lead to the discovery of still other new antigens, Dr. Snyder predicted, and will greatly strengthen the tests for non-paternity.

Home Should Govern Family Size

The type of home provided should be the basis of judging whether parents ought to have large or small families, Frederick Osborn, expert on population problems, said.

Biologists are able to rule out only about two per cent of the population as unfit to have children because they are certain carriers of serious hereditary defects. For the rest, some more indirect method of judging biological fitness must be resorted to in any plan for the

bettering of the human race. Lines of race or class or wealth will not serve this purpose, Mr. Osborn indicated. Instead the ability of parents to give their children a home suitable for their best growth, especially in character and intelligence, is all-important.

Science News Letter, June 13, 1936

ANTHROPOLOGY

No Race Superior to Another, Says Harvard Anthropologist

"Biological Purge" Urged by Anthropologist Who Decries Distinctions on the Basis of Race Background

CALLING for a "biological purge" to guard the American nation from threatened social disintegration, Prof. Earnest A. Hooton, Harvard physical anthropologist, has at the same time issued a challenge to those who commit acts of social injustice under the masquerade of "racial measures" or "racial hygiene."

Prof. Hooton, who has been a leader in the science of man for a quarter of a century, finds no justification for claims that any one race is superior to another.

"Each racial type runs the gamut from idiots and criminals to geniuses and statesmen," he declares. "No type produces a majority of individuals from either end of the scale. There are no racial monopolies either of human virtues or vices."

Races may have specific abilities and disabilities, but Prof. Hooton holds that science has not yet demonstrated them.

In a world that sees such organized movements as Nazi rule in Germany, the Klan and the Black Legion in America, based upon supposed "racial differences," Prof. Hooton's "plain statements about race" presented to a scientific audience through the scientific journal, *Science* (May 29), upset many current popular ideas.

No Aryan Race

There is no "French race" or "German race," for instance. Race is not synonymous with language, culture or nationality. While race is hereditary, language is a cultural acquisition. A Negro may speak English as his native tongue. And there is no Aryan race, for Aryan is a term that can be applied only to a family of languages spoken by populations very much mixed in race, nationality, religion and other aspects of culture.

Here is Prof. Hooton's definition of what is a "race": A physical division of mankind, the members of which are distinguished by the possession of similar combinations of anatomical features due to their common heredity.

America needs a "purge," Prof. Hooton holds, but it is not the kind of purge that has been practiced in Germany, for instance. Its purpose would be to "check the growing numbers of the physically inferior, the mentally ineffective and the anti-social." And Prof. Hooton emphasizes that these elements that make for social disintegration come from no one race or ethnic stock. He challenges:

Weed Out the Bad

"Let each of us, Nordic or Negro, Aryan or Semite, Daughter of the Revolution or Son of St. Patrick, pluck the beam from his own eye, before he attempts to remove the mote from that of his brother. Every tree that bears bad fruit should be cut down and cast into the fire. Whether that tree is an indigenous growth or a transplantation from an alien soil, matters not one whit, so long as it is rotten."

So-called "racial conflicts" of today are traced by Prof. Hooton back to the fact that predatory man, having vanquished the other animals, has realized that "the greatest gain of power and booty lies in preying upon his own species."

From immemorial antiquity, Prof. Hooton points out, hereditary variations of bodily form have been made the basis of charges of racial inferiority in mentality and incapacity for civilization. Thus arose the enslavement of the Negro, and the virtual extermination of the Indian and of many other primitive peoples.

With no more savage worlds left to conquer, the white man has turned the same vicious argument to use against his own kind. And Prof. Hooton charges that more crimes have been committed in the name of race than have ever been perpetrated in the name of liberty.

Prof. Hooton has compiled a statement of the best consensus of scientific anthropological opinion upon what races are and what they mean. Here are his ten points:

(1) A "race" is a physical division of mankind, the members of which are distinguished by the possession of similar combinations of anatomical features due to their common heredity.

No Single Criterion

(2) There exists no single physical criterion for distinguishing race; races are delimited by the association in human groups of multiple variations of bodily form and structure—such as amount of pigment in hair, skin and eyes, form of the hair, shape of the nose, range of stature, relation of head length to head breadth, et cetera. These criteria are of mainly hereditary origin, but none of them is wholly impervious to environmental influences, such as the effects of climate, diet, exercise and altitude. It follows that race is essentially a zoological device whereby indefinitely large groups of similar physical appearance and hereditary background are classified together for the sake of convenience.

(3) Anthropologists have found as yet no relationship between any physical criterion of race and mental capacity, whether in individuals or in groups.

(4) While it is conceivable that physical races may differ in psychological characteristics, in tastes, temperament and even in intellectual qualities, a precise scientific determination of such differences has not yet been achieved. Such discrimination, if it is possible, must await the development of better anthropological and psychological techniques.

Race Is Hereditary

(5) Race is not synonymous with language, culture or nationality. Race is hereditary; language is a cultural acquisition. A Negro may speak English as his native tongue. There is no Aryan race; Aryan is a term applicable only to a family of languages spoken by populations heterogeneous in race, nationality, religion and other aspects of culture. There is no "French race" and no "German race," properly so-called. Such terms imply nationality, use of a common language and some degree of conformity to a pattern of culture, but nothing more.

Cannot Grade Races

(6) Physical anthropologists, as yet, are unable precisely to grade existing human races upon an evolutionary scale, upon the basis of the sum total of their anatomical deviations from apes and lower animals. Each race displays a mixture of advanced and primitive characteristics. A definitive rating of the evolutionary rank of each human race presupposes the completion of many anthropological and physiological researches, which, as yet, have not even begun.

(7) A "pure" race is little more than an anthropological abstraction; no pure race can be found in any civilized country. Racial purity is restricted, at best, to remnants of savage groups in isolated wildernesses. The present races of man have intermingled and interbred for many thousands of years, so that their genealogical lines have become inextricably confused. Physical classifications of race merely attempt to delimit groups of approximate physical uniformity, with a restricted assumption of similar heredity.

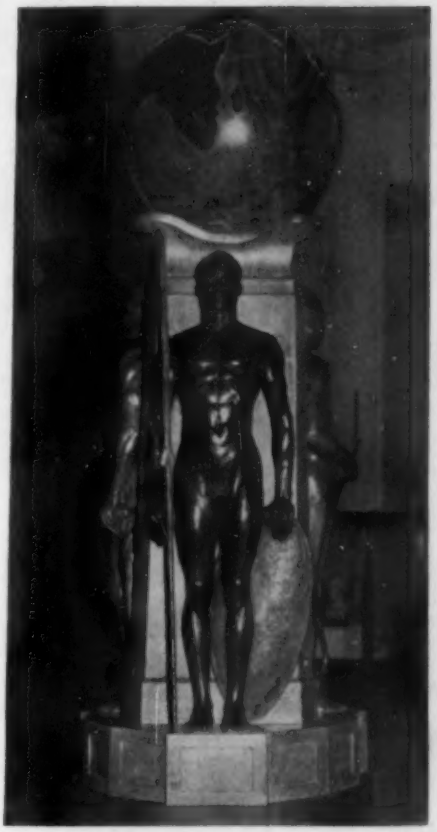
(8) The composite origin of most of the existing races of man is demonstrable. Thus the Polynesian represents a stabilized blend of White, Negroid and Mongoloid elements. The so-called Nordic race is probably a hybrid derivative of several strains present in Europe during the glacial period, to which have been added in historic times Alpine, Mongoloid and other racial elements (carried by Lapps, Finns, Slavs and other peoples who have mixed with the inhabitants of the "Nordic" area).

(9) The study of the results of hybridization between the most physically diverse of modern races—such as the Negro and the Nordic, or the Mongoloid and the brunet Mediterranean White—has not demonstrated that fertility is decreased, or vitality diminished, by such crossings. The hybrids exhibit a wide range of combinations of features inherited from both parental races, but no degeneracy, provided that both parental stocks are normal. It is probable that racial susceptibilities and immunities to certain diseases are different in hybrids from those obtaining in the parental races, but this subject has been insufficiently studied.

Great Individual Variation

(10) Within each and every race there is great individual variation in physical features and in mental capacity, but no close correlation between physique and mentality has been scientifically demonstrated. Knowledge of human heredity is still far from perfect, and altogether inadequate as a basis for attempts to secure specific combinations of physical and mental features by selective breeding. A scientifically valid program of eugenics, at the present, must be limited to the restriction of breeding among the insane, diseased and criminal, and to the encouragement of reproduction in individual families with sound physiques, good mental endowments and demonstrable social and economic capability.

Science News Letter, June 13, 1936



WHITE-BLACK-YELLOW

This famous monument by Malvina Hoffman in Chicago's Field Museum hall of the living races typifies the ideas of anthropologists toward races. This official photograph from the Field Museum shows the three human types portrayed: left, white man; center, black man; right, yellow man.

PSYCHIATRY

Psychiatric Treatment for Nerve Diseases Is Urged

PSYCHIATRIC treatment, usually employed for mental diseases, can be of great aid in certain nerve diseases such as encephalitis lethargica, popularly known as "sleeping sickness," multiple sclerosis and some of the nerve ailments accompanied by convulsions.

This use for psychiatric methods of treating disease was pointed out to neurologists by Dr. O. L. Forel of Prangins, Switzerland, at the meeting of the American Neurological Association in Atlantic City.

"Cooperation between neurologists and psychotherapeutists is of unquestionable value," he declared.

How X-ray pictures of the brain taken after air has been injected into its cavities aids in the diagnosis and location of brain tumors was described by Dr. Walter E. Dandy of Baltimore, who first devised this method known as ventriculography. This same method is valuable in cases of hydrocephalus, a condition characterized by enlargement of the head and bulging forehead. There is an increased amount of fluid on the surface or in the ventricles, or cavities, of the brain, which has given the condition its popular name of water on the brain. It may be caused by various factors, among them a tumor pressing on certain veins or a block which keeps the brain fluid from reaching one of the brain cavities. X-ray pictures taken after air injection show the presence and location of such tumor or block, Dr. Dandy has found. The procedure consists, briefly, in drilling a tiny hole through the skull, inserting a needle through this hole into the brain, withdrawing the brain fluid and injecting the same or a slightly less amount of air and then taking an X-ray picture.

A somewhat similar diagnostic procedure in which fluid is withdrawn by spinal puncture and air injected into the spinal canal before taking X-ray pictures was described by Drs. Cornelius G. Dyke and Leo M. Davidoff of New York City.

Science News Letter, June 13, 1936

Canadian miners trained in rescue work are called Draegermen after Bernhard Draeger, who invented an oxygen helmet for rescue work.

SURGERY

Sterilized Atmosphere for Surgical Operations

TUBES which deliver a "barrage" of germ-killing rays into the operating room are being used to make surgical operations safer at Duke Hospital, Durham, N. C. A report of this latest contribution to surgery, which has been called epoch-making, appears in *Modern Hospital* (June).

The tubes were devised by Dr. Deryl Hart, surgeon-in-chief at Duke Hospital, with the aid of experts of the Westinghouse Lamp Co. Their use in cases of chest surgery was reported by Dr. Hart to the meeting of the American Association for Thoracic Surgery.

Operating room infections, fairly common before these tubes were installed at Duke Hospital, have practically disappeared, Dr. Hart reported. Patients suffer less pain after operation, have less fever, their wounds heal more rapidly and their stay in the hospital is shortened.

Open plates of germ culture media standing about seven feet from the center of the radiation tubes for an hour during a chest operation collected enough germs for only three germ colonies. Plates exposed the same way during an appendix operation performed without the radiation tubes collected enough germs from the air to make nearly a hundred colonies.

The surgeon and his assistants are protected from the rays by goggles of plain glass and hoods of starched cloth.

Science News Letter, June 13, 1936

PHYSICS

Neutrons Found in Air 12 Miles Above Earth

NEUTRONS, the most elusive members of the family of atomic building blocks which make up atoms and hence all matter, have been found twelve miles up in the air above the earth's surface.

The stratosphere neutrons are not as potent in energy as some of those created in the scientific laboratories but they are much more numerous at the high altitudes, according to Dr. L. H. Rumbaugh and Dr. G. L. Locher of the Bartol Research Foundation of the Franklin Institute (*Physical Review*), who based their announcement on months of study of the records obtained on the stratosphere flight, last fall, of the National Geographic Society-U. S. Army Air Corps balloon Explorer II.

The neutrons were found among the primary cosmic radiation detected at the extreme stratosphere heights reached by the balloon. They accounted, however, for only one per cent. of the total cosmic ray intensity. Nevertheless, in the rarefied heights of the stratosphere they were more than 2,000 times as numerous as the highest observations on the land at the top of Pike's Peak.

In order to determine neutron intensities at even greater heights a series of flights are now being made with small Cellophane sounding balloons, without human pilots, by which it is hoped 100,000 feet elevation will be reached.

Science News Letter, June 13, 1936

PHYSICS

Chandler Medal Awarded For Research on Cold

FOR his research in devising the method whereby science makes its "coldest" cold, Prof. William Francis Giauque of the University of California has been awarded the prized Chandler Medal of Columbia University.

The "coldest" cold involves that temperature region in the neighborhood of one degree above absolute zero. On the Centigrade scale of temperature absolute zero is 273 degrees below freezing point.

Prof. Giauque's method uses the ability of a magnetic field to extract heat from certain magnetic salts which have already been cooled to within a few degrees of absolute zero by other methods.

In his technique, Dr. Giauque puts the sample material to be cooled inside a Dewar flask filled with liquid helium at a temperature of minus 268.9 degrees Centigrade. The space between the sample and the walls of the flask is filled with gaseous helium to conduct the heat away.

The magnetic field is then applied and the heat evolved by the magnetization of the sample is conducted to the surrounding liquid helium. Then, keeping the magnetic field constant, the surrounding helium gas is pumped away. When the sample is thus insulated the magnetic field is reduced and the sample cooled still further.

While not of practical usefulness at present scientists know that the vacuum created as a step in the process is more nearly perfect than that obtainable in any other way.

Science News Letter, June 13, 1936

IN SCIE

SEISMOLOGY

Quake Off Pacific Coast Of Northern California

A SHARP earthquake shook the Pacific Ocean bed at a spot 150 miles west of Cape Mendocino, on the northern California Coast, at 1:15 a.m., Pacific Time, on Wednesday, June 3. Seismologists of the U. S. Coast and Geodetic Survey determined its location as in 41 degrees north latitude, 127 degrees west longitude, on the basis of data collected from a number of observatories by Science Service.

Stations telegraphing reports were those of the Jesuit Seismological Association at Georgetown University, St. Louis University, Fordham University, and Canisius College; the University of California; the private observatory of Mrs. M. M. Seeburger at Des Moines, Iowa; the Dominion Observatory, Ottawa, Ont., and the observatories of the U. S. Coast and Geodetic Survey at Tucson, Ariz., Chicago, and Ukiah, Calif.

Science News Letter, June 13, 1936

TEXTILES

Fabric for Fireproof Garments Made in U.S.S.R.

FIREPROOF fabric knitted out of spun threads of asbestos is the invention of a Leningrad inventor, M. Semenovich. Garments made of the new material are stated to be quite unlike the heavy, armor-like safety suits heretofore made of asbestos; they weigh only about four pounds to the suit, and are as comfortable and well ventilated as wool.

Tests made by workers wearing suits and gloves of asbestos fabric sound like tales of almost demon-like immunity to fire. The wearers picked up red-hot rods of metal and bent them as if they were soft wax. With suitable respirators, firemen walked right through flames to the very heart of the fire they were seeking to conquer.

Large-scale manufacture of the new stuff has been undertaken in the U.S.S.R.

Science News Letter, June 13, 1936

EE FIELDS

ASTRONOMY

Huge Spectrograph For Eclipse Observation

See Front Cover

THE giant camera shown on the front cover, one of the largest spectrographs ever built, will be used by the joint Harvard-Massachusetts Institute of Technology expedition to observe the total eclipse of the sun on June 19, from a special station at Ak-Bulak, Siberia. The instrument is made of dowmetal, 96 per cent. magnesium and 4 per cent. aluminum, an exceptionally lightweight alloy. The entire spectrograph box, 12 feet by three feet by five feet, with its complex mountings, weighs less than half a ton. Dr. Donald H. Menzel, director of the expedition, is at the right while Henry Hemmendinger, Harvard graduate student who will be a member of the party, is at the left.

The box will house four plane gratings, polished metal surfaces ruled with 15,000 lines to the inch, which will be used, each with a separate lens and camera, to photograph the crescent of the eclipsed sun and the corona in lights of different wavelengths, ranging all the way from the ultra-violet to the infra-red.

Science News Letter, June 13, 1936

CHEMISTRY-AGRICULTURE

Agriculture and Industry Brought Closer Together

CLOSER rapprochement between agriculture and industry in America appears possible through the attitude disclosed in a communication of Secretary Wallace to Francis Garvan, president of the Farm Chemurgic Council, in response to a proposal for coordinating agriculture, industry and science sent to the Department of Agriculture several months ago.

Secretary Wallace pointed out that most of the Council's proposals for the utilization of farm products in industry are either already under experiment in the Department, or have been under contemplation for some time. This is a mild demurrer, by inference, to some of the claims of priority which some members of the Farm Chemurgic Council have been making for certain ideas; but in view of the urgency of the farm market situation, it is probable that neither party will waste much time in crying "I saw it first!" As the Secretary remarks, cooperation is highly important in reaching a solution of the farm problem, and will be welcomed from any quarter.

Two suggestions in the letter offer possibilities of a dual role of cooperation for the Farm Chemurgic Council, which can be highly helpful in both directions. First, there is the opportunity for the Council to gather and transmit to the Department of Agriculture data on the needs of both industry and agriculture, and on the chances of their being gotten together for mutual cancellation. Second, the Council might serve very usefully as a kind of liaison corps, to make more quickly available to industry the results of research conducted by the Department.

While the activities of the Farm Chemurgic Council have sometimes been looked upon a bit suspiciously, as "promotional," Secretary Wallace does not adopt this point of view. Instead, he commends their basically conservative and businesslike attitude in such matters as the spread of tung-oil tree cultivation, on which the Council has for many months been fighting a jackal fringe of "blue-sky" land speculators that threaten to descend on this new Southern rural industry. He even goes beyond them in conservatism, setting down the principle that a nation-wide view must be taken of every move toward the industrialization of farm products, especially where a promising new product threatens to upset an already standing and stable industry.

Science News Letter, June 13, 1936

ICHTHYOLOGY

Fish-Spearing Expeditions Destroy Undesired Species

FISHING parties are going out on Michigan waters with no expectation of bringing home a single fish fit to eat.

Their objective is the spearing of undesired species, like carp, gar, and the primitive species known variously as dogfish, bowfin, mudfish and grindle. These all have a tendency to destroy or crowd out fish of higher sporting and food value.

The parties are organized under the direction of a conservation officer, and with State permission. The boats often return loaded to the gunwales with the spoils of the raid.

Science News Letter, June 13, 1936

METEOROLOGY

Drought Damaging Crops In East and Great Plains

DROUGHT in the East, now spreading into the northern Great Plains region also, is proving damaging to wheat and oats, which are now heading out rather lightly and on too-short stalks. Corn planting is practically complete, but germination is lagging, due to dry soil. In the Southeast, cotton is not in good shape, though in the Mississippi states and the Texas-Oklahoma area the cotton situation is much better. Only the Southwest, once the afflicted "dust bowl," has abundant moisture—in spots, too much.

The weekly summary of crop-weather conditions by the U. S. Weather Bureau also shows that the entire month of May was above normal in temperature and deficient in rains.

Science News Letter, June 13, 1936

ENGINEERING-SPORT

"Electric Judge" to Rule Olympic Fencing Matches

CONTENDERS in Olympic fencing matches this summer will not have to depend on the quickness of the human eye to judge the points they score. Their own weapons, electrically connected to a device which announces each "touch," will tell their own story. (*Umschau,* May 24)

The point of each foil will carry a small concealed electrical connection, held open by a spring. When a "touch" is scored, the connection is momentarily closed. A light cable, led up the fencer's arm and out through the back of his suit, winds and unwinds from a reel behind him, as he retreats and advances. Through this cable the electric announcement of the point is carried to an apparatus on the judges' table, which lights two lamps and rings two bells.

According to Olympic fencing rules, a counter-thrust made within a twentieth of a second of a successful thrust by one's opponent is not counted. The apparatus accordingly is so arranged that after the circuit has been closed it cannot be made to register again until the required twentieth of a second has elapsed.

Fencers in practice have declared themselves very little hampered by being thus "wired for touch," and they are willing to accept the arrangement because it eliminates any possibility of doubt or dispute over the troublesome twentieth-second rule.

Science News Letter, June 13, 1936

ARCHAEOLOGY

Political Cartoons Are Old Stuff

World's Oldest Political Caricature Found In Egypt—Pharaoh was Subject of First Candid Camera Studies

By EMILY C. DAVIS

THE world's oldest political caricature has been unearthed in Egypt.

So, to other famous caricatured features—Teddy Roosevelt's teeth, Franklin D. Roosevelt's chin, Herbert Hoover's plump face and stiff collar—add this interesting item:

The skinny neck and big ears of the dignified Pharaoh Akhnaton, one-time ruler of Egypt.

It turns out that a royal artist—ancient term for government clerk—couldn't resist caricaturing Egypt's king, 3,300 years ago.

So far as is known, he was the first to dare any such stunt. Egypt gets one more distinction, as the cradle land of a popular form of modern humor.

It happened when Egypt was having a new deal, with idealistic Pharaoh Akhnaton trying to give his country a new religion, new government, a new capital city. Naturally, there were old dealers, too. And so this artist, employed at the new capital city, put in an idle hour, perhaps at lunch time, to cut on stone a comic portrait in profile of his king.

The artist did not need to be taught the basic principle of caricature art. When a human being takes pencil in hand and sets out to make fun of another, he instinctively knows what to do. You seize upon the most conspicuous, the most unflattering feature you can find, and you play up that weakest point—big. Any schoolboy, drawing crude pictures of the teacher, knows the trick.

Easy to Caricature

It was cruelly easy to caricature Akhnaton. He was odd looking to start with. He was thin. He had a spindly neck and a sharp chin. His head bulged noticeably at the back. He had a big mouth and big ears.

There is not much doubt as to how Akhnaton really looked, for one of his novel ideas was to insist on realism in art. Egyptian Pharaohs before him had approved of smoothing over and conventionalizing royal features. But Akhnaton ordered: Paint me as I am.

Because modern museums have accustomed the public to stereotyped poker-faced Pharaohs, the official portraits of this Pharaoh Akhnaton have sometimes been mistaken for caricatures. They look queer enough. But put the actual caricature beside any of Akhnaton's other profiles, and the real Akhnaton becomes almost handsome by contrast.

The obvious test of any caricature is whether people recognize the victim. Akhnaton's artist passed the test with flying colors. For when Egyptologists unearthed the ancient comic, they gave one look and said, Akhnaton.

Undoubtedly, the artist knew his sketch was good, and therefore dangerous. Pharaoh Akhnaton would recognize himself instantly. And if he did! No need to imagine the royal wrath or how the painter's career would be blasted.

Pharaoh Akhnaton probably had no strong sense of humor. He has come down in history as a most idealistic king. He overthrew the powerful collection of Egyptian gods and their priests, and instead gave Egypt one deity, the Sun, to worship. He has been called the world's first pacifist ruler. Expecting any Pharaoh, and especially an earnest reformer type, to enjoy having fun poked at his royal features, would be too much.

Buried His Art

So, the artist who had been so daring as to make fun of a king, became frightened of his own too-clever work. Apparently, he dug a deep hole and quickly buried the dangerous picture. One disadvantage of sculptured art was that it was hard to destroy.

At any rate, in a deep hole modern archaeologists found the broken fragment, and that is their explanation of how it probably came to be hidden there.

It looks as though Pharaoh Akhnaton never knew that he was the first ruler of history to be immortalized in caricature style. The picture lay safely buried awaiting discovery by a generation that appreciates this specialized form of humor.

If the artist had been at Egypt's old capital, Thebes, or some other distant city, he might have been bolder. Political lame ducks, such as the priests of Amon, would have laughed heartily and bitterly at the comic king. The priests of Amon had plenty to be bitter about, for when

OLDEST POLITICAL CARTOON

Pharaoh Akhnaton was the victim, but he probably never saw his comic portrait.

Akhnaton outlawed the whole troop of Egypt's specialized gods, replacing them by a single deity, he struck hardest at the god Amon and Amon's powerful politician-priests.

It was to make a clean break with the old system of religion that Akhnaton moved the capital of Egypt almost 200 miles down the Nile and built an entire new city, with roofless temples open to the Sun he worshipped, and with airy palaces and houses and shops, all springing up like a mushroom city in a gold rush.

Even the names of the royal family and their courtiers had to be changed, if they called to mind the hated old regime.

Akhnaton Himself

Akhnaton himself had been named Amenhotep IV. The name, which three Pharaohs before him had borne, meant Amon is Satisfied. He changed it to honor the Aten or Sun Disk, source of light and life. Akhnaton means Glory of the Aten.

Vowels in Egyptian names such as this, incidentally, are apt to change from o's to e's or u's with the greatest fickleness. This erratic behavior is not "old Egyptian." There were no vowels expressed in Egyptian hieroglyphics. In fact, the lack of them is just the trouble.

Akhnaton's name in Egyptian signs read simply K-H-N-T-N, and Egyptologists are left to argue and reason over how the name should be spelled and pronounced to render it most correctly. This name can be spelled Khuenaten, Ikhnaton, Akhenaten, and in a variety of other ways.

King Tut, Too

Akhnaton's son-in-law, the future Pharaoh Tutankhamon, tactfully shifted to the name Tutankhaten while the religious reform was at its height.

Obviously, a king who took his ideals and convictions as seriously as Akhnaton was no person to tolerate ridicule. The time was not ripe for political cartooning to get a start in Egypt, even though the germ of the art was there, ready to grow and flourish.

However, another very modern line of informal art did spring up then, and got royal encouragement. To see where the candid camera idea began, go to the ruins of Akhnaton's capital at Tell-el-Amarna, where so many new ideas were introduced into Egypt about 1370 B.C.

It seems a long way from that ancient capital city of Egypt to our cities where news photographers snap their candid camera studies of the great in action. But the Egyptian pictures, found on tomb walls in Tell-el-Amarna, are in exactly the same spirit of informality.

There is a candid-camera style picture of the Queen kissing the King while he drives the royal chariot. Like many another driver, Akhnaton returns the salute, letting the traffic take care of itself.

Then there is another candid-camera picture of Akhnaton standing not at all like a monarch. He has his legs crossed, and leans on his staff.

There is another traffic scene, with a small princess poking the horse with a stick while her father the Pharaoh drives.

And there is a scene that recalls the hearty table manners of Henry the Eighth, for it shows Akhnaton and his beautiful Queen Nefertiti at a banquet in honor of his mother Queen Tiy.

Gnawing a Bone

Each of the three sits beside a small table loaded with delicacies. The King of all Egypt gnaws at a bone as long as his arm, wrapped in meat. The dainty Nefertiti holds a roast duck or chicken in one hand, devouring it.

What the guest of honor, Queen Tiy, is eating is left to imagination, for a scarred blank is all that is left of that. The royal faces were scraped off by Akhnaton's successors, in the usual Egyptian manner of wiping out an opponent. Rays of the Sun Disk, however, still beneficently shine down on all members of the royal dinner party, giving a religious touch to the scene that Akhnaton would have approved.

Amazed the Court

All the candid and informal pictures of the royal family must have amazed the Egyptian court and populace. The pictures were as different from stiff and stony Pharaonic portraits as the rigidly posed tintypes of grandfather's time are different from lively snapshots.

Egyptian Pharaohs were fond of boasting "Never Before" was such and such a thing done, until my time. Akhnaton could certainly say: Never before was art so truthful.

So far did the King go, in demanding truth in art, that his own personal defects and those of his wife were duly shown. No tactful retouching of features, in this extraordinary age.

As a result, the most famous and lovely piece of Egyptian sculpture known today—the limestone portrait head of Queen Nefertiti in the Berlin Museum—shows the Queen with a sad cast or glaze over one eye.

The beautiful Queen was afflicted with ophthalmia in one eye, according to a recent statement of the British Egyptologist J. D. Pendlebury, who has directed some of the latest excavations at Akhnaton's capital city and has studied this age of Egyptian history closely.

Mr. Pendlebury imagines Akhnaton demanding Truth, truth, truth! like Cromwell's decision that a portrait should show "Wart and all!"

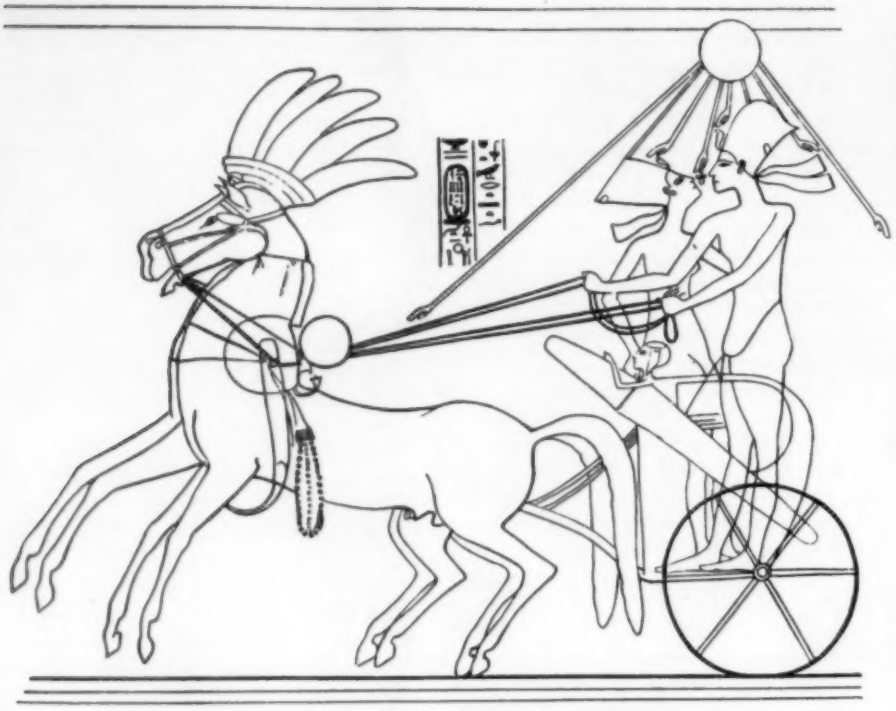
Modern photographers have been more gallant than the artists of Nefertiti's time. They have usually photographed the famous portrait in profile at an angle not showing the Queen's eye defect.

Justification

The delicate beauty of the Queen and the skill of the Egyptian sculptor have made this head of Nefertiti a bone of contention between two countries. Berlin and Egypt have warmly disputed possession of the most attractive bit of sculpture that has survived ancient Egypt. If Pharaoh Akhnaton cared for public opinion and what future generations might think of him and his art theories, here surely is justification for his school of art that would please him.

AKHNATON AND HIS WIFE

This is how Akhnaton really looked. He believed in realistic art, and encouraged artists to portray his defects. The portrait is in the Brooklyn Museum.



ANCIENT CANDID CAMERA ART

It is as old as the Egyptians. In this ancient sample Queen Nefertiti tries to kiss her husband while he is driving the royal chariot.

In portraying the physical defects of women, Akhnaton's artists were going farther than modern art generally goes. Portrait studies of men may play up wrinkles, irregular features, and other traits that make the man. But women are generally flattered. And it was the same in Egypt, before Akhnaton, and again after his influence waned. Egyptian artists ordinarily knew that the right thing was to make a woman young and beautiful and slender, no matter what her age or figure. And in this fashion Egyptian women were portrayed in the tomb paintings and religious scenes. Against such a tradition, the stark realism that Akhnaton demanded of his artists in portraying women becomes a startling innovation.

As for his own features, Akhnaton stood for seeing them portrayed even by artists who were not particularly expert, and who made him look even worse than he really did. All this is known, because, in the unearthing of his capital, sculptors' studios have been excavated. And in the ruins are found the molds of faces of the royal family. It appears that Akhnaton and his wife and daughters posed for the royal artists and permitted their masks to be made. A death mask of Akhnaton was also found, near the palace.

In one respect the artists did slip conspicuously from their ideal of serving truth. That was when they came to portraying other Egyptians with the King's physical defects. It was fashionable and good politics to be like the Pharaoh. So, many of the people of this time are shown with bulging heads, thin bodies, bay-window figures.

Akhnaton's reforms lasted as long as he did. His reign was only about twenty years, and then Egypt reverted to the old ways of worshipping many gods and not being quite so natural in portraying royal families for the immortal record of art.

At its worst, Akhnaton's art produced some grotesque exhibits. At the best, the art buried in the short-lived capital city is pronounced unsurpassed in the art works of ancient Egypt.

Science News Letter, June 13, 1936

●RADIO

June 16, 2:15 p.m., E.S.T.

CRIME LABORATORIES—Dr. William Souder of the National Bureau of Standards.

June 30, 2:15 p.m., E.S.T.

BIGGER AND BETTER BERRIES—Dr. Frederick V. Coville of the U. S. Bureau of Plant Industry.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.

MEDICINE

Addison's Disease Successfully Treated by Diet

ONCE-FATAL Addison's disease may be successfully treated by diet alone, it appears from studies by members of the staff of the Mayo Clinic, Rochester, Minn.

Patients suffering from this condition, which is characterized by extreme weakness and wasting and a peculiar bronze coloration of the skin, can be kept in good condition by a diet low in potassium and high in sodium salts, Drs. R. M. Wilder, A. M. Snell, E. J. Kepler, E. H. Rynearson, Mildred Adams and E. C. Kendall conclude in a recent report.

Addison's disease is caused by disease or injury to the cortex of the adrenal gland which prevents its producing enough of its vital hormone, cortin. Extracts of the gland have been successfully used in the treatment of the disease during the past few years. The extract, however, is expensive and the treatment must be continued throughout the patient's life. This may deprive some patients of its benefits.

Research, continued after the discovery of the value of cortin, showed that a diet containing large amounts of salt was of benefit in Addison's disease. But in certain severe cases, not even adequate intake of salt and liberal use of the gland extract were sufficient to keep the patient from dying of lack of cortin.

Studies conducted by Drs. W. D. Allers, H. W. Wilson, and E. C. Kendall showed that dogs which had no adrenal glands at all could be kept alive without cortin if they were given proper amounts of both salt and sodium citrate and the amount of potassium in the diet was kept low. Giving the dogs more potassium, however, caused a critical condition similar to the crisis which may prove fatal to human Addison's disease patients.

Following this lead, a low potassium diet was given to Addison's disease patients. The patients did very well and required less of the sodium salts and less or even no cortin at all.

Studies made on three volunteer patients of the effects of different amounts of potassium and sodium salts showed definitely the importance of restricting the amount of potassium in the diet.

Science News Letter, June 13, 1936

Canned cheddar cheese is a new product tried out by dairy scientists at the University of California.

PHYSIOLOGY-PSYCHOLOGY

Hearing Equipment Has Safety Factor Approved by Engineers

NATURE, in building the hearing apparatus, used a safety ratio which would meet the requirements of modern engineering standards, Dr. W. J. Brogden, of the University of Illinois, told the Midwestern Psychological Association.

A loss of 50 per cent of an animal's auditory equipment reduces his hearing sensitivity by only 2 or 3 per cent, Dr. Brogden said. He was reporting an investigation on the hearing of cats conducted in cooperation with Dr. Edward Girden, of Brooklyn College, Dr. Fred A. Mettler, of the University of Georgia School of Medicine, and Dr. Elmer Culler, of the University of Illinois.

"It seems unlikely," said Dr. Brogden, "that a loss of 3 decibels in acuity would appreciably impair the animal's chances for survival; in which case we may properly speak of a safety factor of two.

"Indeed we may question whether the mortality-ratio among cats would be seriously increased by a loss of three-fourths of their normal acoustic equipment, that is by a functional attenuation in hearing of 16 to 18 decibels" (about 15 per cent).

Sounds travel four main highways in their journey from the ear to the upper brain centers, for the impulses starting in each ear travel to both sides of the brain cortex.

Loss of one cochlea—the snail-shaped part of the inner ear essential to hearing—which closes two of the highways, is followed by a hearing loss of 3 to 4 decibels.

Loss of one side of the brain cortex, also closing two highways, results in a hearing loss of the same magnitude. The experiments indicate that the left hemisphere may be slightly superior in acoustic value to the right, but there is no great difference.

Loss of one cochlea plus loss of the brain cortex from the other side (closing 3 paths) results in a loss of only 16 to 19 decibels.

Loss of one cochlea plus loss of the brain cortex from the same side results in a loss of only 13 to 14 decibels.

Since, in these last two cases, only a single one of the four highways to the upper brain centers remains open for the hearing impulses, the small impairment to hearing indicates a safety-factor which compares favorably with that found in other physiological systems and with good engineering practice.

Science News Letter, June 13, 1936

PUBLIC HEALTH

Married People Healthier, Live Longer; Study Shows

IF YOU want to live long and be healthy, get married.

Figures showing that the married state, whether blissful or not, is at least a healthy one, are reported in the current issue of the Metropolitan Life Insurance Company's Statistical Bulletin.

"Marriage, apparently, is conducive to long life and good health," the report states. "At any rate, married men and women live longer than do single persons, and married people register lower death rates from nearly all the important causes of death than do bachelors or spinsters.

"We would expect these findings to emerge from any statistical study of mortality according to conjugal condition, for married persons constitute a selected group. 'The lame, the halt, and the blind' do not marry, as a rule. Nevertheless, the differences between the respective death rates of wedded and single persons are so large that this factor of selection can be only a partial explanation of them.

"It would seem that the relatively staid and regular course of married life is more conducive to health than are the comparatively free and easy ways of the unmarried.

"Among males over 15 years of age, the standardized death rate for bachelors is 1,218.2 per 100,000 as compared with 855.9 for married men.

"Among females the standardized death rate of spinsters is 1,039.1, as against 856.6 for the married of all ages."

The death rates for influenza, pneumonia, tuberculosis, chronic heart disease, kidney disease, apoplexy, ulcer of the stomach, alcoholism and suicide are appreciably higher among the single than the married, showing that ways of life among the single are not so healthy. Cancer, on the other hand, which so far as known is not subject to control by living habits or environment, except in certain very special cases of industrial hazards, shows relatively little difference in mortality between married and single persons.

Reasons suggested for the healthier and longer life of the married are greater regularity of sleep, meals and recreation; sense of responsibility on the husband's part which makes him avoid known sources of infection and hazardous adventures; and the solicitude of married couples for each other's health which "often insures timely medical attention to conditions which, in single individuals, are likely to be ignored until the damage is beyond repair."

Science News Letter, June 13, 1936

PLANT PHYSIOLOGY

Some Perfumes Help, Others Harm Plants

PLANTS are aided in their growth by certain odors, harmed by others, reports Dr. Madaus, of the staff of the Radebeul Biological Station, near Dresden. Seedlings of rye, lupines and cress grew much more rapidly when exposed to the scent of ripe apples. The odor of peppermint, on the contrary, had a marked depressing effect.

Science News Letter, June 13, 1936

THE IDENTITY THEORY
By Blamey Stevens

Is time a fourth dimension of space? Or is it the same thing as space, but expressed in one dimension instead of three? This is a fundamental question that no physicist can afford to evade. The answer to this question affects the interpretation of many results in experimental work. For example, the validity of the electron-volt as a measure of kinetic energy, or the reliance to be placed on the mass spectroscope.

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BOTANY

NATURE RAMBLINGS

by Frank Thone

"Leaves Three, Let It Be!"

POISON ivy vies with political speeches, just now, for the unenviable distinction of being Public Pest No. 1. You can't go out on a picnic yourself, you can't send your kids out to a camp, without the risk of having your household quiet upset for a week by an attack of the blistered, itching, red-skinned affliction known to the medical profession as rhus dermatitis, but to the laity as just plain ornery ivy poisoning.

Hardly a corner of the land escapes. Poison ivy grows all over the United States and Canada east of the Rockies. Its evil twin, poison oak, takes charge of the Pacific Coast region. And in Eastern boglands a third member of this criminal fraternity, poison sumac, holds its sway.

Eastern poison ivy and western poison oak look so much alike that it takes an expert to tell them apart. They are either low shrubs on the ground, or vines climbing trees and stone walls by means of thousands of short, clinging aerial roots. Each leaf is divided into three leaflets; whence the ancient doggerel warning, "Leaves three, let it be!" This distinguishes them from the American woodbine or Virginia creeper, which has five leaflets to a leaf: "Five fingers may handle five leaves." Both prefer open, moist woodlands—exactly where you like to picnic or camp.

Poison sumac is found only in the East, and only on the borders of acid bogs—in the same kind of soggy land where grow tamarack trees, skunk cabbage, and the purple pitcher-plant. It is more vicious than either poison ivy or poison oak, but attacks fewer people. It looks very much like common sumac, but differs in having drooping clusters of pallid, waxy berries, and a pale gray bark. Moreover, common sumac grows mostly on uplands, never in bogs.

All three of these plants are strictly American products. The first person ever to take notice of poison ivy in print was Captain John Smith. Noting that it differed little in appearance from English "yvie," the redoubtable Captain went on to state that it "causeth rednesse, itchynge, and finally blysters," but that if let alone the ailment presently went away of itself. Captain John Smith must have had a good tough hide.

Or he may have been one of the fortunate half-immune people. The three poison weeds affect different persons very differently. Some seem to be totally immune—though this immunity can never be depended on to last indefinitely. And immunity once lost is seldom recovered.

The poison of poison ivy and its kin-criminals is an oily substance related to carbolic acid. The leaves must be contacted to give you a "dose." Stories of ivy poison "caught" from just going near the plant most probably have some unknown or ignored element in them. Either the victim had previously rubbed against poison ivy somewhere else, without noticing it, or had handled some object that in turn had been in contact with poison ivy—garden tools, for example, or a picnic basket. It is even possible for an extremely susceptible person to be poisoned by shaking hands with an immune person who has been recklessly plucking poison-ivy leaves.

Remedies Aplenty

Fortunately, most poison ivy victims can get rid of their affliction in relatively short time, and it is even possible to prevent yourself from being poisoned at all. Something over 300 remedies have been proposed for ivy poisoning. Most of them of course are worthless, but there are several that really work.

A very good remedy, not as well known as it deserves to be, is a five per cent solution of potassium permanganate in water. You can mix this up yourself, or get your druggist to do it for you.

Poison Sumac

Puncture all blisters, and swab up their watery contents with absorbent cotton or sterile gauze. Then thoroughly moisten all poisoned skin areas with the solution. It will turn the skin brown, but this can be cleaned up after a time with lemon juice.

A highly successful preventive treatment is a five per cent solution of ferrous sulphate in a half-and-half mixture of water and alcohol, with a little glycerin added. Wash this solution on all exposed parts of the skin, before going into the woods. Do not rinse or dry the skin; let the solution dry in place. The iron in the compound unites with the poison and renders it insoluble and harmless. This "iron treatment" has been used by thousands of persons, and has given complete protection to all except a very few unlucky extreme-susceptibles.

Science News Letter, June 13, 1936

PALEONTOLOGY

60,000,000 Winters Leave Tiny Skeleton Unharmed

MORE than sixty million Wyoming winters have had little effect on the skeleton of a small, rat-sized animal which has been discovered by Dr. Glenn L. Jepsen, of the Princeton University geology department, and his associates.

The specimen, which was alive in the paleocene epoch, at the very dawn of the Age of Mammals, has been so perfectly preserved that even the hyoid bones of the throat, scarcely an eighth of an inch long and no larger in diameter than an ordinary horsehair, are undamaged.

It was found in the Big Horn Basin of Wyoming by the Scott Fund Expedition of the University, under the direction of Dr. Jepsen. The bones have just been removed from the rocky matrix in which they were imbedded, and Albert Thompson, of the American Museum of Natural History, who aided in this work, declared it was the most difficult he has ever done.

Only a few toes are missing from the skeleton which, judging from the length of the hind legs, was that of a leaping animal similar to the modern lemur. It is by far the most complete skeleton of that age yet found.

Several skulls and a great many jaws were also uncovered by the expedition, which will continue its researches in vertebrate paleontology this summer under a grant from the American Philosophical Society.

Science News Letter, June 13, 1936

•First Glances at New Books

Additional Reviews On Page 388

Archaeology

THE STORY OF THE BIBLE—Sir Frederic Kenyon—*John Murray, London,* 159 p., 9 pl., 3s. 6d. With new Bible manuscripts coming to light, it was about time that this revised history of the Bible appeared, to bring the subject up-to-date. Sir Frederic Kenyon, eminent British scholar, presents this popular version, stressing what every reader would want to know—significance and value of the now famous Chester Beatty papyri that have provided the earliest Bible yet made available for modern experts to study.

Science News Letter, June 13, 1936

Fiction

HIS PATIENTS DIED—Claude Lillingston—*William Blackwood & Sons, Edinburgh,* 317 p., 7s. 6d. Dr. Lillingston has written a rather grim novel on the subject of euthanasia. As a novel it will probably appeal to readers of detective and mystery stories, though it does not fall strictly in that class. As to the problem of whether a physician should end the life of a patient suffering the agonies of incurable disease, Dr. Lillingston seems to content himself with presenting both sides, letting the reader answer the question for himself. The hero of the novel, a physician who believes in and secretly practices euthanasia, is presented in a more sympathetic light than his opponents who hold more orthodox views. Yet at the end of the book, the author brands his hero as insane—"lovable" but "more or less daft."

Science News Letter, June 13, 1936

General Science

A LEARNING GUIDE IN GENERAL SCIENCE—Philip A. Boyer, Arthur S. Clark, Hans C. Gordon and John Shilling—*Lyons and Carnahan,* 355 p., $1.28. GENERAL SCIENCE UNIT TESTS. ARRANGEMENT B. (For teachers only) —Philip A. Boyer and Hans Gordon—*Lyons and Carnahan,* 24 Units, Free with *A Learning Guide in General Science,* 24c. each if purchased separately.

Science News Letter, June 13, 1936

Geography

CHILE: LAND AND SOCIETY—George M. McBride—*American Geographical Society,* 408 p., $4. In this analysis of Chile's all-important land problems the author warns of impending uprising in Chile, which, if it comes, is likely to be as violent and destructive as Mexico's ten-year revolution. The key to the situation, which may avert serious trouble, is agrarian reform. The small aristocratic class of landholders is faced with the alternative of revolution or of giving back to the nation part of their land, so that it may be re-distributed more equably among the people.

Science News Letter, June 13, 1936

Radio

EDUCATION ON THE AIR . . . AND RADIO AND EDUCATION. 1935—Ed. by Levering Tyson and Josephine MacLatchy—*Univ. of Chicago Press,* 317 p., $3. The proceedings of two gatherings at which questions of education and radio were discussed are printed in this volume. Progress that is being made and problems that remain to be attacked are presented from the angles of educators, club women, radio experts, and others who attended the sessions.

Science News Letter, June 13, 1936

Home Economics

FLORIDA SALADS—Frances Barber Harris—*Bruce Humphries,* 85 p., $1. Reminding the reader briefly that salads are important in diet, the author gives recipes for a great variety of salads that can be made with southern fruits and also with meats, fish, and vegetables. Salad dressings and salad sandwiches are also described with practical "pointers" for making them.

Science News Letter, June 13, 1936

Health Education

BUILDING FOR HEALTH—William E. Burkard, Raymond L. Chambers, and Frederick W. Maroney—*Lyons & Carnahan,* 309 p., 76c.

Science News Letter, June 13, 1936

Biology

CENTROSOMES ET EXTRUSIONS CHROMOTIQUES CHEZ LES ANGIOSPERMES—Pierre Gavaudan and Yu Chih-Chen—*Hermann & Cie, Paris,* 48 p., 15fr.

Science News Letter, June 13, 1936

Biophysics

EXPOSÉS DE BIOPHYSIQUE. LA PLASTICITÉ DES PROTÉIDES—Andrée Roche—*Hermann & Cie, Paris,* 53 p., 12fr.

Science News Letter, June 13, 1936

Biology

EXPOSÉS DE BIOLOGIE VÉGÉTALE. PROBLÈMES DU DÉTERMINISME GÉNÉTIQUE —H. J. Maresquelle—*Hermann & Cie, Paris,* 63 p., 12fr.

Science News Letter, June 13, 1936

Exploration

DESOLATE MARCHES—L. M. Nesbitt —*Harcourt, Brace,* 320 p., $2.50. The experience of doing a hard piece of work in the tropics is described in this book with a vividness that makes the reader feel himself part of the expedition. Mr. Nesbitt's narrative is that of a surveying job in the Orinoco basin, Venezuela.

Science News Letter, June 13, 1936

Paleontology

STARUNIA: No. 8. PLEISTOCENE LAKE NEAR JASLO—W. Szafer and B. Jaron. 20 p.; No. 9. INTERGLACIAL IN SAMOSTRZELNIKI BEI GRODNO IN POLEN—J. Trela, 8 p., diagram—*Polish Academy of Sciences.* New chapters in the investigation of one of the most interesting pleistocene deposits ever discovered in northern Europe.

Science News Letter, June 13, 1936

Ethnology

SINKYONE NOTES—Gladys A. Nomland—*Univ. of Calif. Press,* 25 p., 1 map, 35 cents. Study of an Athabascan Indian tribe of northern California coast.

Science News Letter, June 13, 1936

Anthropology

PRIMITIVE HUNTERS OF AUSTRALIA —Wilfrid D. Hambly—*Field Museum of Natural History,* 59 p., XII plates, 30c. Like most well-written museum handbooks intended primarily for use in the museum's exhibit hall, this account provides a good introduction to Australian ethnology, with references for further reading.

Science News Letter, June 13, 1936

Embryology

EXPOSÉS D'EMBRYOLOGIE ET DE MORPHOLOGIE VÉGÉTALES. LA SEGMENTATION. Pt. I, 88 p., 18fr., Pt. II, 80 p., 16fr.—René Souéges—*Hermann & Cie, Paris.*

Science News Letter, June 13, 1936

Health Education

HEALTH STORIES AND PRACTICE—William E. Burkard, Raymond L. Chambers, and Frederick W. Maroney—*Lyons & Carnahan,* 256 p., 76c.

Science News Letter, June 13, 1936

Archaeology

A CADDO BURIAL SITE AT NATCHITOCHES, LOUISIANA — Winslow M. Walker—*Smithsonian Institution,* 15 p., 6 plates, 15c.

Science News Letter, June 13, 1936

PERIODICAL ROOM JUN 19

•First Glances at New Books

Additional Reviews On Page 387

Comparative Anatomy

THE CRANIAL MUSCLES OF THE VERTEBRATES—F. H. Edgeworth—*Cambridge* (*Macmillan*), 493 p., $30. A spaciously conceived and magnificently executed monograph. Treatment includes all forms from cyclostomes to mammals, each principal topographic region (as ocular, mandibular, etc.) being given its special chapter. Since innervation is an essential part of the understanding of a muscle, the neurologist as well as the myologist will find material of solid interest in this book. A 38-page table of synonyms will be found a welcome guide in the cross-tracked nomenclatural jungle. The 841 figures are grouped, by phyla, in the last 192 pages.

Science News Letter, June 13, 1936

Geography

GEOGRAPHY, AN INTRODUCTION TO HUMAN ECOLOGY—C. Langdon White and George T. Renner—*Appleton-Century,* 756 p., $4. Geography used to be simply a compilation of names and locations—sheer factual description. Nowadays, however, geographers are taking a leaf out of the ecologist's book, and are introducing a consideration of factors, thereby making theirs a dynamic study. In the present book, the factors are considered in order: first, various types of climate, then topographic types and their influences, then area and density of population, etc., winding up with an effort to apply to social geography the succession concept first introduced into botanical ecology by Cowles, some forty years ago.

Science News Letter, June 13, 1936

Geology

TREASURES IN THE EARTH—Edward F. Fitzhugh, Jr.—*Caxton Printers,* 130 p., 16 plates, $2. Mining geology, to the layman, is all too often a mystery couched in an esoteric jargon that expresses but does not explain. This modest-sized book removes the unnecessary mystery, tells how geologists find mineral wealth, and in addition explains how it got there in the first place.

Science News Letter, June 13, 1936

Biology

COLLECTED SCIENTIFIC PAPERS OF SIR WILLIAM BATE HARDY—Pub. under the auspices of the Colloid Committee of the Faraday Society—*Cambridge* (*Macmillan*), 922 p., 15 plates, $18. Nearly three-score papers, representing the ripe fruits of more than forty years of strenuous research, are gathered into this thick volume. Beginning with researches on cells, particularly on blood cells, in the 1890's, and proceeding through a consideration of protoplasmic systems to a final determined attack on the riddle of the physical and chemical properties of living gels and their boundary films, the collection is a history of the evolution of a scientist's life, as well as its most significant monument.

Science News Letter, June 13, 1936

Geobotany

ESSAYS IN GEOBOTANY—T. H. Goodspeed—*Univ. of Calif. Press,* 319 p., $3.50. A *Festschrift* honoring Dr. William Albert Setchell, emeritus professor of botany at the University of California, embodying contributions by such well-known Americans as Chaney, Clements, and Cooper, and Arrhenius, Rübel, and Skottsberg among friends overseas. The list of Prof. Setchell's own writings, included as an appendix, begins at Norwich, Conn., in 1883, and ends (for the moment) in the North Pacific in 1935.

Science News Letter, June 13, 1936

Botany

TREES OF GRAND CANYON NATIONAL PARK—N. N. Dodge—*Grand Canyon Nat. Hist. Assn.,* 69 p. (Copies may be obtained at 50c each by addressing the Grand Canyon Natural History Association, Grand Canyon, Arizona.) "Tenderfoot" notions that the Grand Canyon is a big hole in the middle of an empty desert are all wrong: the Grand Canyon region is really heavily forested. This little book, done in lithotype and with lots of illustrations, will help the nature-interested tourist to orient himself and get acquainted.

Science News Letter, June 13, 1936

Anthropology

VARIA ANTHROPOLOGICA — Philip Drucker, A. L. Kroeber, and Gladys Nomland—*Univ. of Calif. Press,* 25 p., 2 maps, 25 cents. Three papers on California Indians, dealing respectively with a Karuk world-renewal ceremony, Karok towns, and Wiyot towns.

Science News Letter, June 13, 1936

Nature Study

ALONG NATURE'S TRAILS—Lillian Cox Athey; Illus. by Benson B. Moore—*Amer. Book Co.,* 344 p., $1.20. Mrs. Athey knows how to talk to children: straightforwardly, simply (yet avoiding "talking down" and baby-talk), telling her story easily and without apparent effort yet getting it all in, and always avoiding the noxious vice of "anthropopsyching" her animals. Although the book is avowedly for young people, an adult reader will find himself munching chapter after chapter, if he permits himself a couple of initial bites. Mr. Moore's illustrations are both accurate and spirited.

Science News Letter, June 13, 1936

Biology

THE VARIATION OF ANIMALS IN NATURE—G. C. Robson and O. W. Richards—*Longmans, Green,* 425 p., $8.25. Darwin didn't settle anything. In the vernacular phrase, he just "started something"; and biologists are still at it. Sometimes, when the air gets thick with partial and disputed explanations and hypotheses, it is useful to step back, take a long breath, and try to see the problem whole; which is what the two British authors of the present work have done. For their painstaking and impartial examination of the question of animal variation their colleagues everywhere may well be grateful.

Science News Letter, June 13, 1936

Hygiene

HEALTH AND ACHIEVEMENT—Edgar A. Cockefair and Ada Milam Cockefair—*Ginn,* 536 p., $1.60.

Science News Letter, June 13, 1936

Biology

MANUAL OF BIOLOGY; Fifth Ed.—George Alfred Baitsell—*Macmillan,* 434 p., $2.50. A book that can go through five large printings, as this one has done, needs no special blurb. Treatment begins with protoplasm, and proceeds systematically from lowest to highest, in both animals and plants. Laboratory directions are integrally incorporated, as Part II.

Science News Letter, June 13, 1936

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